

# ADVANCE IDENTIFICATION OF WETLANDS IN GEORGIA

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## INTRODUCTION

In an effort to protect and manage our remaining wetlands, the U.S. Environmental Protection Agency (EPA) and the U.S. Corps of Engineers (COE) are working together to fully implement Section 404 of the Clean Water Act, which requires that a permit be obtained from COE before filling wetlands.

Advance Identification (ADID) is a planning process authorized by the Section 404 regulations (EPA 1980) which allows EPA, in cooperation with COE and state and local governments, to study the extent and functions of wetlands in selected areas. This information is then used by the agencies to designate which wetlands in the ADID study area are of ecologically high value and should be protected from future fill activities, and in some cases, which wetlands are of ecologically low value and could serve as potential future disposal sites with appropriate mitigation. A narrative summary of the study, accompanied by maps showing these designations, is produced and made available to the public through cooperating government agencies.

Though ADID results are advisory in nature, they will be used by EPA and COE in determining if the Section 404(b)(1) Guidelines would be met, and for that reason, they provide the regulated community with an indication of whether a Section 404 permit is likely to be received. ADID results should discourage permit applications for fill in areas identified as high value wetlands. The results of an ADID study can be used by the regulated community to make wise decisions during project planning that will help save time and investment dollars. Local governments are encouraged to participate in implementation of ADID studies, and to incorporate the results into their land-use management process. By providing maps and education on wetlands, ADID's should help prevent unauthorized or inadvertent filling of wetlands.

### ADIDs in Georgia

Two ADID studies are currently underway in Georgia - on the central Dougherty Plain in the Albany area and in western Chatham County near Savannah. These two studies are the first such projects attempted in Georgia.

They were initiated in response to pressures on wetland resources from expansion of urban areas and to public misconceptions about the extent of wetland jurisdiction and permit requirements under Section 404. Both study areas contain wetlands listed by the U.S. Fish and Wildlife Service (FWS 1992) as having high environmental values.

## METHODS

Typically, ADID study areas are nominated by governmental or non-governmental organizations. Areas that pass a screening procedure established by EPA are then scheduled for study. A state or local government sponsor, interagency field team, and technical advisory committee are recruited by EPA. Local experts are contacted, and the literature is searched for information on salient issues. Advisory jurisdiction is mapped and functional assessment is performed. A technical summary document (TSD) is drafted. Parallel to the technical work, public education is conducted in the project area. A public hearing is held to accept comments on the maps and draft TSD. EPA and COE make revisions to these documents in response to the comments, and issue a joint press release announcing and summarizing the final versions.

## CENTRAL DOUGHERTY PLAIN

### Overview

The Central Dougherty Plain ADID project encompasses approximately 400,000 acres in southwest Georgia. Portions of Baker, Calhoun, Dougherty, Lee and Terrell Counties are represented. As shown in Figure 1, the Flint River drains the project area and forms its eastern boundary. Major tributaries feeding the Flint include the following: Chickasawhatchee Creek, Kiokee Creek, Coolewahee Creek, Muckalee Creek and Kinchafoonee Creek.

The goal of this project is to protect an area known locally as the Swamp of Toa. Objectives in reaching this goal include identification of sensitive habitats needed to maintain the high quality of the Swamp of Toa, compilation of a geographic information system (GIS) on which to base local use decisions, improved interagency coordina-

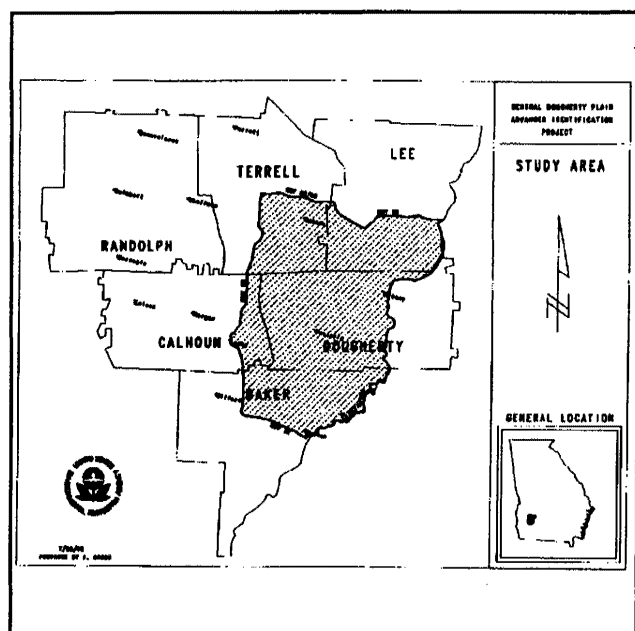


Figure 1. Central Dougherty Plain ADID Study Area.

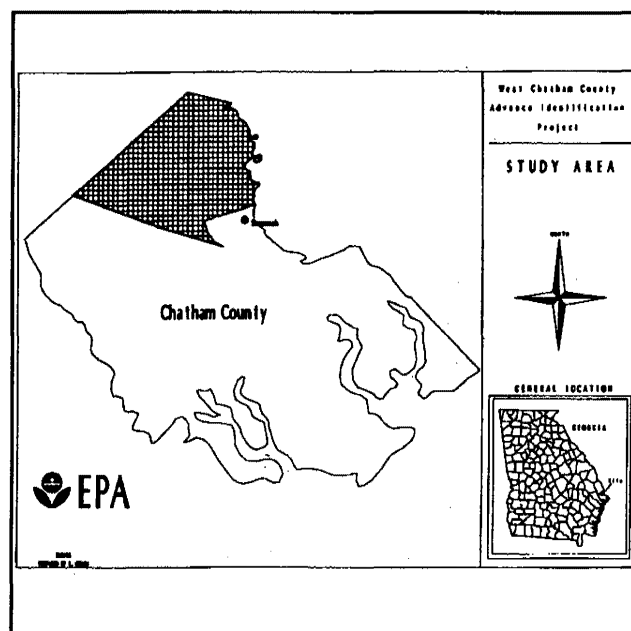


Figure 2. West Chatham County ADID Study Area.

tion, and public education on the functions provided by local wetlands.

#### Background

Project area wetland communities generally occur along creek floodplains or in limesinks. The creek floodplain wetlands form extensive bottomland hardwood communities. Recent trend analysis by FWS shows that bottomland hardwoods are the most rapidly disappearing wetland community in the southeast and that over eighty percent of these wetlands have already been destroyed (Dahl and Johnson 1991).

Limesink wetlands are unique in Georgia and are generally limited to the Dougherty Plain, Valdosta area, and portions of northwest Georgia. These wetlands are recharge areas for aquifers that provide drinking water to rural households. Limesinks form through collapse of the underlying limestone. In the Albany area, they are typically dominated by cypress and gum trees or herbaceous marsh vegetation.

Federally endangered species, such as the wood stork, depend on wetlands in the project area. Both the Atlantic and Mississippi flyways cross the area. Large hunting plantations located within the project feature popular game species that inhabit wetlands.

Urban growth, silvicultural conversion and agricultural activities threaten the bottomland hardwoods and limesinks. As the city of Albany expands, more and more wetlands are being filled for housing and commercial developments. This growth threatens water quality, flood patterns and wetland habitat.

In terms of affected area, silvicultural activities pose the greatest threat to the bottomland hardwoods. Conversion

of hardwoods to pine and drainage modifications reduce biodiversity and alter wetland hydrology. Water intensive crops, such as pecans, are the major agricultural commodities produced in the project area. Local residents are concerned that agricultural pumping from the Floridan Aquifer may lower water tables and dry up wetlands. Water pollution from agricultural pesticides, sediments and nutrients has been documented.

#### Technical Protocol

Sensitive habitats necessary to protect the Swamp of Toa are being identified through a review of existing literature, application of remote sensing techniques, and limited field study. Wetland communities are being categorized using vegetative and hydrogeomorphic characteristics. A method for wetlands functional assessment that will assign values to all wetland categories is under development. Wildlife surveys are being conducted to document endangered species use. Limited hydrologic monitoring, planned in cooperation with the U.S. Geological survey, is being conducted to document interconnections between surface and ground water. The TSD will describe wetland threats and suggest appropriate measures for protection of vital wetland resources.

A GIS database is being compiled that identifies wetland types, location of hydric soils and land use. From this database, suitability for disposal of fill material will be established using ranking factors for functional value.

This multiagency planning effort involves the EPA, COE, FWS and Georgia Department of Natural Resources. The project team is conducting public meetings and workshops to educate local residents on the value of local wetlands and to obtain input on the ADID project. Field

studies are currently underway and map products are scheduled to be available in 1994. At that time, the team will revisit local government leaders to encourage incorporation of our product into local planning efforts.

## WEST CHATHAM COUNTY

### Overview

This project encompasses 45,000 acres northwest of Savannah (Figure 2). It was initiated at the request of the Chatham County / Savannah Metropolitan Planning Commission. The local government is concerned about the extent of Section 404 jurisdiction in transitional wetlands, inasmuch as jurisdiction can affect development potential.

Flatwoods, largely under management for pulp production, are extensive on the area. Hydric soils underlay some of them. As is the case with wet pine flatwoods, most wetlands on the area occur on soils that are saturated but not inundated. Hydrological, biological, and geochemical assessment to delineate and assess these saturation-driven and disturbed wetlands is a primary focus of this study.

### Technical Protocol

A consulting firm was hired by Chatham County to characterize wetland vegetative communities, conduct functional assessment tasks, and draft the TSD. FWS is conducting a wildlife survey and habitat evaluation on each of these communities.

The U.S. Soil Conservation Service is leading ongoing field investigation to enhance the county soil survey and elucidate hydrologic regimes. Weekly readings are being obtained by Union Camp Corporation from piezometers installed at representative locations throughout the area. Hydrological study is also focusing on indicators of saturation found in the soil.

A GIS assembled by a sub-contracted consultant is being used to model and map jurisdictional wetlands. Digital land cover data was acquired through remote sensing and classified using standard software. Other GIS data layers were constructed from various existing maps.

Development of a model for functional assessment is ongoing. The model will emphasize remote data supplemented by field observations, and will utilize GIS capabilities to define assessment areas.

## RESULTS

Nine wetland communities have been identified. They are blackwater branch swamp, alluvial swamp, tidewater swamp and marsh, gum pond, cypress pond, bay swamp, shrub bog (pocosin), freshwater marsh, and lowland broadleaf evergreen forest (hydric hammock).

Many minor corrections have been made to map units

in the County soil survey, resulting in some areas falling out of jurisdiction and others being brought into consideration as possible wetlands. The three marginal hydric soils, Pooler, Pelham, and Ogeechee, have been divided into wet, typical, and dry phases on the basis of landscape position. Indicators of saturation are not generally evident in the typical and dry phases of these soils.

Initial data from a limited number of wells revealed wide variation within and between soils. The water table was within 1 foot of the surface for several consecutive weeks during the late spring and again in mid-summer in a wet phase Pooler unit. Groundwater appeared to rise and fall rapidly in typical Poolers, and to remain well below the root zone in dry phase units. Pelham appeared to be generally wetter than Pooler, while Ogeechee was drier. Water levels typically dropped in the fall and rose in the winter in all three soils.

Five physical and two cultural/political data layers were assembled into the GIS model. The layers are cover type, National Wetland Inventory (NWI), soil survey, United States Geological Survey (USGS) quadrangles, Federal Emergency Management Agency (FEMA) floodplains, infrastructure, and ownership. Soils and vegetation will be combined with well data and landscape position to delineate wetlands.

### Discussion

Piezometer data from the late winter - early spring wet season will be critical in determination of jurisdiction. Topographic information must be used to extrapolate from well sites to the entire study area. Given the low relief of the area, our data is limited in this regard by the USGS contour interval of 5 feet and by FEMA's lowest available flood frequency of 10 years.

## SUMMARY AND RECOMMENDATIONS

Central Dougherty Plain and West Chatham County contain significant wetland resources. These systems provide water quality protection, floodwater storage, wildlife habitat, and other functions important to the local and regional environment. The geophysical and ecological integrity of these wetlands is being compromised by local land use patterns. Advance planning is therefore needed to ensure that functional wetlands are identified and protected.

The ADID program can play a pivotal role in this planning process. ADID results should be used in land use planning by local governments and site selection for development by landowners or acquisition by conservation organizations. The results should also be used as an indication of the relative time and expense involved in obtaining fill permits, as well as the likelihood of receiving such permits.

## LITERATURE CITED

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